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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,876	06/08/2006	Roy Larsen	50147/010001	9168

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EXAMINER	
PERREIRA, MELISSA JEAN	

ART UNIT	PAPER NUMBER
1618	

NOTIFICATION DATE	DELIVERY MODE
04/29/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentadministrator@clarkelbing.com

Office Action Summary	Application No.	Applicant(s)	
	10/552,876	LARSEN ET AL.	
	Examiner	Art Unit	
	MELISSA PERREIRA	1618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 March 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *14-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *14-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/10/10*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 14-17 are pending in the application. Claims 1-13,18 and 19 were canceled in the amendment filed 3/10/10. Any objections and/or rejections from previous office actions that have not been reiterated in this office action are obviated.

Specification

The amendment to the abstract filed 3/10/10 is acknowledged and accepted.

Response to Arguments

1. Applicant's arguments filed 3/10/10 have been fully considered but they are not persuasive.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larsen et al. (US 2001/0008625A1) in view of Larsen et al. (WO02/05859A2) as stated in the office action mailed 9/10/09. The reference of Goldenberg (US 6,083,477) is omitted due to the amendment to the claims.

4. The assertions with respect to the reference of Goldenberg are moot due to the amendment/cancellation of claims.

5. Applicant asserts that the conjugates described in Larsen '625 are not encompasses by claims 14-17 because folate conjugates are specifically excluded from the claimed subject matter and Larsen '625 describes the use of folates, with thorium-227 given as just one of a number of possible isotopes which could be delivered.

6. The reference of Larsen '625 explicitly discloses that the folate (derivative) may be substituted with another receptor binding molecule, such as oestrogen or testosterone (which encompasses the targeting moieties of the instant claims) conjugated to the radionuclide-antibody complex for affinity to breast or prostate cancer to generate an oestrogen/testosterone-radionuclide-antibody complex. The conjugates of the disclosure are specifically directed to the soft tissue site containing the receptor.

7. Applicant asserts that there is no teaching or suggestion in Larsen '625 that thorium-227 is specifically suitable for any particular application (e.g. for targeting to soft tissues), not is there any teaching of a therapeutic window (dosage range) for thorium-227 in soft tissues.

8. The instant claims are not drawn to the method of targeting soft tissue. The thorium-227 of Larsen '625 encompasses the thorium-227 of the instant claims and is capable of the same functions, such as being suitable for targeting to soft tissues and has the same properties. Larsen '625 teaches that the oestrogen/testosterone-radionuclide-antibody conjugates of the disclosure are specifically directed to the breast and prostate cancer (soft tissue site) containing the receptor (Larsen '625 p2, [0016]). The radionuclides of the conjugates comprise thorium-227, etc. (Larsen '625 p2, [0020]). Therefore, it would have been obvious to one ordinarily skilled in the art to

utilize thorium-227 in the conjugates of the disclosure. The conjugates of the disclosure encompass the pharmaceutical composition of the instant claims and have the same properties and are capable of the same functions, such as soft tissue targeting.

9. Also, the intended use is not generally afforded any patentable weight and since the combination leads to the same compounds as claimed, they would be expected to be capable of performing the same intended use. "The recitation of a new intended use for an old product does not make a claim to that old product patentable." *In re Schreiber*, 44 USPQ2d 1429 (Fed. Cir. 1997).

10. The reference of Larsen et al. '859 was used to teach of the dosage range of thorium-227 wherein the thorium-227-chelator complex for administration may be in a pharmacologically acceptable carrier delivered at doses of 10kBq-2MBq/kg bodyweight for the use in therapy and/or palliation related to malignant diseases affecting bones ***and/or soft tissue***, such as prostate cancer, breast cancer, kidney cancer, etc.

11. Therefore, it would have been obvious to one skilled in the art to utilize thorium-227 at doses of 10kBq-2MBq/kg as both Larsen references are drawn to the targeting of thorium-227 complexes to prostate cancer, breast cancer.

12. Applicant asserts that Larsen '859 describes the use of thorium-227 for use in bone targeting complexes and the thorium conjugates described utilizes a bone targeting bisphosphonate which specifically binds to the hydroxyapatite mineral component of bone. Hydroxyapatite is not found in soft tissues, thus this conjugate would be ineffective in targeting soft tissues and hence, the complexes disclosed in

Larsen '859 cannot be considered to teach towards compositions which are "soft tissue targeting" as required by claims 14-17.

13. The instant claims are not drawn to the method of targeting soft tissues. The reference of Larsen '859 was used to teach that a thorium-227-chelator complex for administration may be in a pharmacologically acceptable carrier delivered at doses of 10kBq-2MBq/kg bodyweight for the use in therapy and/or palliation related to malignant diseases affecting bones ***and/or soft tissue***, such as prostate cancer, breast cancer, kidney cancer, etc.

14. Larsen '625 was used to teach that the radionuclide-antibody-oestrogen/testosterone conjugates of the disclosure are specifically directed to the breast and prostate cancer (soft tissue site) containing the receptor.

15. Therefore, it would have been obvious to one skilled in the art to utilize thorium-227 at doses of 10kBq-2MBq/kg for the radionuclide-antibody-oestrogen/testosterone conjugates of Larsen '625 as both Larsen references are drawn to the targeting of thorium-227 complexes to prostate cancer, breast cancer.

16. Also, the intended use is not generally afforded any patentable weight and since the combination leads to the same compounds as claimed, they would be expected to be capable of performing the same intended use. "The recitation of a new intended use for an old product does not make a claim to that old product patentable." *In re Schreiber*, 44 USPQ2d 1429 (Fed. Cir. 1997).

17. Applicant asserts that the doses recited in Larsen '859, and relied on by the office, are not specific to thorium-227, but are specific to a method in which the isotope is targeted to bone.

18. Larsen '859 teaches that the physiologically acceptable preparations for in vivo administration according to the present invention comprise the dissolved complex (e.g. salt of the chelator complex with the radionuclides), etc. The activity of the radionuclides will depend on several factors, e.g. half life, energy released, route of administration and the underlying condition or disease, and the dose will vary between approximately 10kBq-2MBq/kg. Thorium-227 and actinium-225 are the radionuclides of the disclosure and it would have been obvious to one ordinarily skilled in the art that the doses disclosed are directed to radionuclides of the disclosure, such as thorium-227 and actinium-225.

19. Applicant asserts that the dose range in Larsen '859, if applied to thorium-227 in soft tissues span all the way from therapeutically inactive to unquestionably lethal. This general dosage range provides no useful information to the skilled artisan, because these same effects can be achieved by any arbitrary minimal or maximal dose.

20. Larsen '859 teaches that the activity of the radionuclides will depend on several factors, such as route of administration and the underlying condition or disease. Furthermore, it is obvious to vary and/or optimize the amount of (compound) provided in the composition, according to the guidance provided by (reference), to provide a composition having the desired properties such as the desired (ratios, concentrations, percentages, etc.). It is noted that "[W]here the general conditions of a claim are

disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Conclusion

21. No claims are allowed at this time.

22. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MELISSA PERREIRA whose telephone number is (571)272-1354. The examiner can normally be reached on 9am-5pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Hartley can be reached on 571-272-0616. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael G. Hartley/
Supervisory Patent Examiner, Art Unit 1618

/Melissa Perreira/
Examiner, Art Unit 1618